

unit, making a second transition from the state of relatively high power consumption to the state of relatively low power consumption after outputting the processed data,

wherein the data processing device includes:

- a load circuit including a central processing unit and operated by supplied electric power;
- a step-down power supply circuit stepping down the power supply voltage from the battery and including an output node coupled to the load circuit, the step-down power supply circuit including:
 - a first step-down unit stepping down the power supply voltage, and
 - a bias current control circuit controlling a magnitude of bias current flowing through an auxiliary path from the output node to a ground, the auxiliary path is separate from a path to the load circuit; and
- a control circuit increasing the magnitude of the bias current, prior to a change of an operation state of the

load circuit by which a relatively large change occurs to an amount of current consumed by the load circuit, wherein the bias current control circuit includes a first MOSFET (Metal-Oxide Semiconductor Field-Effect Transistor) having a source-drain path as the auxiliary path and a gate coupled to receive a first bias control signal from the control unit,

wherein when the load circuit makes the second transition, the control circuit increases the magnitude of the bias current, prior to the second transition, by outputting the first level of the first bias control signal to the gate of the first MOSFET to turn on the first MOSFET.

10. The data processing system according to claim **9**, wherein when the load circuit makes the first transition, the control circuit increases the magnitude of the bias current, prior to the first transition, by outputting the first level of the first bias control signal to the gate of the first MOSFET to turn on the first MOSFET.

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